

REMARKS

Applicants appreciate the consideration of the present application afforded by the Examiner. Claims 1-4 and 6-11 were pending prior to the Office Action. Claims 12-14 have been added through this Reply. Therefore, claims 1-4 and 6-14 are pending. Claims 1, 6, 7, and 8 are independent. Favorable reconsideration and allowance of the present application are respectfully requested in view of the following remarks.

Claim Rejections - 35 U.S.C. §103(a)

Claims 1, 4, and 6-11 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over JP 07-143513 to Morimoto (hereinafter "Morimoto") in view of U.S. Patent No. 2003/0058357 to Aotsuka (hereinafter "Aotsuka"); claim 2 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Morimoto in view of Aotsuka and further in view of U.S. Patent No. 5,808,681 to Kitajima (herinafter "Kitajima"); claim 3 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Morimoto in view of Aotsuka and further in view of U.S. Pub. No. 2002/0012463 to Yamada (herinafter "Yamada") Applicants submit the Examiner has failed to establish a *prima facie* case of obviousness and traverse the rejection.

For a 35 U.S.C. § 103 rejection to be proper, a *prima facie* case of obviousness must be established. *See M.P.E.P. 2142*. One requirement to establish *prima facie* case of obviousness is that the prior art references, when combined, must teach or suggest all claim limitations. *See M.P.E.P. 2142; M.P.E.P. 706.02(j)*. Thus, if the cited references fail to teach or suggest one or more elements, then the rejection is improper and must be withdrawn.

Independent claim 1 recites a solid-state imaging apparatus comprising, inter alia:

a plurality of sensors and a plurality of filters, each sensor associated with a respective filter, wherein each of the plurality of filters is different from said plurality of types of color filters and has a different transmission characteristic than others of the plurality of filters, wherein the plurality of sensors detect light in a wavelength range which induces a difference having a predetermined value or more between radiant energy of a first light source and radiant energy of a second light source, the plurality of sensors being provided on the surface of the solid-state imaging device; and

a mixing ratio estimation unit that determines a mixing ratio between illumination light originating from the first light source and illumination light originating from the second light source, through use of a detection signal output from the plurality of sensors.

Applicants submit that Morimoto and Aotsuka do not teach or suggest at least the above limitations of independent claim 1, alone or in combination.

Morimoto discloses determining a “mixed rate” for mixed light by determining the distance between an actual measurement of incident light and the location of predetermined values for specific light sources. *See paragraphs* [0009]-[0010]. However, Morimoto expressly teaches performing this determination using the signals of the R, G, and B components of the acquired image. *See paragraphs* [0015]-[0016]. There is no disclose of using a sensor with a filter having characteristics different from the color filters of the image sensor, much less a plurality of sensors and respective filters.

The Examiner concedes that Morimoto fails to teach or suggest a sensor having a filter different from the plurality of types of color filters, and relies upon Aotsuka to allegedly cure this deficiency. *See Office Action, page 5.* Aotsuka discloses a sensor with a long red filter which is used to produce an LR signal. This signal is used to identify the kind of illuminating light source which was used to illuminate the subject in the image. *See e.g., Figure 3 and paragraphs* [0080]-[0082].

However, Aotsuka fails to teach or suggest “*a plurality of sensors and a plurality of filters, each sensor associated with a respective filter, wherein each of the plurality of filters is different from said plurality of types of color filters and has a different transmission characteristic than others of the plurality of filters.*” Furthermore, Aotsuka fails to teach or suggest that “*the plurality of sensors detect light in a wavelength range which induces a difference having a predetermined value or more between radiant energy of a first light source and radiant energy of a second light source.*”

Importantly, although Aotsuka discloses using the LR signal to identify the type of illuminating light source, Aotsuka does not teach or suggest determining the types of different respective *multiple* light sources illuminating the subject in the acquired image. The Examiner alleges that Aotuska suggests that having pixels with separate filters can facilitate detection

between a variety of light sources. *See Office Action, page 5 and Aotsuka, paragraphs* [0096]-[0098]. Applicants do not dispute that Aotsuka uses the LR filter to assist in differentiating between various light sources. However, Aotsuka only discloses identifying which type of light source is the light source used in the image. In other words, in Aotsuka only one light source is identified from a set of potential light sources. This is not the same as using a plurality of sensors and respective filters with differing transmission characteristics, and separate from the color filters of the image sensor, in order to determine the amounts of illumination contributed by each of first and second light sources.

Owing to the features of the present invention, the use of multiple filters with transmission characteristics that are both different from each other and from the color filters for image acquisition allows for at least a more robust and accurate determination of the amounts of illumination contributed by each of the light sources used in the image, and the proper mixing ratio between the light sources to use to correct the image.

In this instance, the combination of Morimoto and Aotsuka fails to teach or suggest each and every limitation of independent claim 1. Kitajima and Yamada are not relied upon to teach, and indeed cannot teach, at least the aforementioned deficiencies of Morimoto and Aotsuka. Independent claims 6-8 recite at least features comparable to those discussed above with respect to claim 1 and are distinguishable from the prior art at least for the reasons presented above with respect to claim 1. Dependent claims 2-4 and 9-11 are also distinguishable from the prior art at least due to their dependence from claims 1, 6, and 8, directly or indirectly.

Therefore, Applicants submit that claims 1-4 and 6-11 are patentable over the prior art and respectfully request that the rejection of the claims under §103(a) be withdrawn.

New Claims

New claims 12-14 have been added through this Amendment, and are considered to be in condition for allowance at least due to their dependence upon claim 1, directly or indirectly. No new matter has been entered.

CONCLUSION

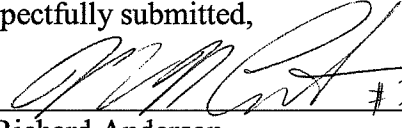
All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance. Notice of same is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John R. Sanders Reg. No. 60,166 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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